

REMARKS

This application has been reviewed in light of the Office Action dated March 10, 2004. Claims 1, 2, 4-12, 14-22, and 24-28 are pending in this application. Claims 10, 14, and 20 have been amended to define still more clearly what Applicants regard as their invention. Claims 1, 7, 11, 17, 21, 27, and 28 are in independent form. Favorable reconsideration is requested.

First, Applicants gratefully acknowledge the allowance of Claims 7, 17, and 27.

The Office Action rejected Claims 1-2, 4-6, 8-12, 14-16, 18-22, 24-26, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Japanese Laid-Open Patent Application No. 11266161A (Andrew) in view of U.S. Patent No. 6,459,816 (Matsuura et al.). Applicants respectfully traverse this rejection.

Applicants submit that independent Claims 1, 11, 21, and 28, together with the remaining claims dependent thereon, are patentably distinct from the proposed combination of the cited prior art at least for the following reasons.

The aspect of the present invention set forth in Claim 1 is an image processing apparatus for receiving and decoding a code sequence obtained by encoding an image. The apparatus includes a decoding means for entropy-decoding the input code sequence to obtain quantization indices and a correction value selection means for selecting correction values among a plurality of correction values, used to correct the quantization indices obtained by the decoding means. The apparatus also includes a dequantizing means for correcting the quantization indices using the correction values selected by the correction value selection means, in accordance with values of the quantization indices and generating a series of coefficient sequences by computing products of the corrected

quantization indices and a quantization step, and an inverse transforming means for restoring an image signal by executing a predetermined inverse transform manipulation of the coefficient sequences obtained by the dequantizing means.

Among the notable features of Claim 1 is that the dequantization means corrects quantization indices using the correction values selected by the correction value selection means and generates a series of coefficient sequences by computing products of the corrected quantization indices and a quantization step.

Andrew relates to a method of compressing digital data. The Office Action states at page 3 that Andrew discloses a “dequantizing means for generating a series of coefficient sequences by computing products of the corrected quantization indices and a quantization step (Figure 17, reference numeral 34). Applicants submit, however, that Andrew merely discusses that “. . . the quantised coefficients are decoded 32 before an inverse quantization process is applied 34” (page 44, lines 32-33, with reference to Figure 17). Therefore, Applicants submit that element 34 corresponds to known in the art general inverse quantization but nothing in this section, or any other section, of Andrew would teach or suggest a dequantization means that generates a series of coefficient sequences by computing products of the corrected quantization indices and a quantization step, as recited in Claim 1.

Matsuura, as understood by Applicants, relates to an image processing system for compressing image data including binary image data and continuous tone image data by a sub-band transform method with a high-compression rate. The Office Action at page 3 states that Matsuura et al. discloses a dequantization means “for correcting the quantization indices using the correction values selected by the correction value selection means, in accordance with values of the quantization indices (Figures 13-18; column 15,

line 37, to column 17, line 62). Applicants submit that this section of the specification discusses that 0-bits are added to quantized data and the number of the added 0-bits corresponds to the number of deleted bits before quantization. The image processing system in Matsuura further changes the number of deleted bits based on whether a pixel block to be processed corresponds to an edge area or non-edge area, or the absolute values of HL and LH components are equal to or greater than a threshold value.

The Examiner stated in the Office Action at page 3 that the deleting or adding of 0-bits in Matsuura corresponds to the correction of the quantization indices. In Matsuura, however, since the importance of each of the sub-band transformation factors LL, HL, LH and HH is different, in order to reduce the total number of bits of the factors 2x2 pixels, the LL component is multiplied by 4, the LH and HL components are multiplied by 16, and the HH component is discarded, so that the total number of pixels can be reduced, for example, from 36 to 16.

In contrast, an image processing apparatus having the dequantizing means recited in Claim 1 corrects the quantization indices (q) using the correction values (r) in accordance with values of the quantization indices (q). For example, the correction is (q+r) if $q > 0$, (q-r) if $q < 0$, and (q+r)=0 if $q = 0$. Further, the dequantizing means recited in Claim 1 generates a series of coefficient sequences by computing products of the corrected quantization indices (q) and a quantization step (Δ) (page 15 of specification, equations (7)-(9)).¹ For these reasons, Applicants submit that Matsuura would not teach or suggest the feature of correcting the quantization indices using the correction values selected by the

¹(It is to be understood, of course, that the scope of the claims is not limited to the details of this embodiment.)

correction value selection means, in accordance with values of the quantization indices, as recited in Claim 1.

Accordingly, Applicants submit that at least for the reasons described above, Claim 1 is patentable over the cited prior art, when taken separately or in any proper combination.

Independent Claims 11, 21, and 28 are method, computer readable storage medium, and apparatus claims, respectively, that correspond to apparatus Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final Action is believed to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and the allowance of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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